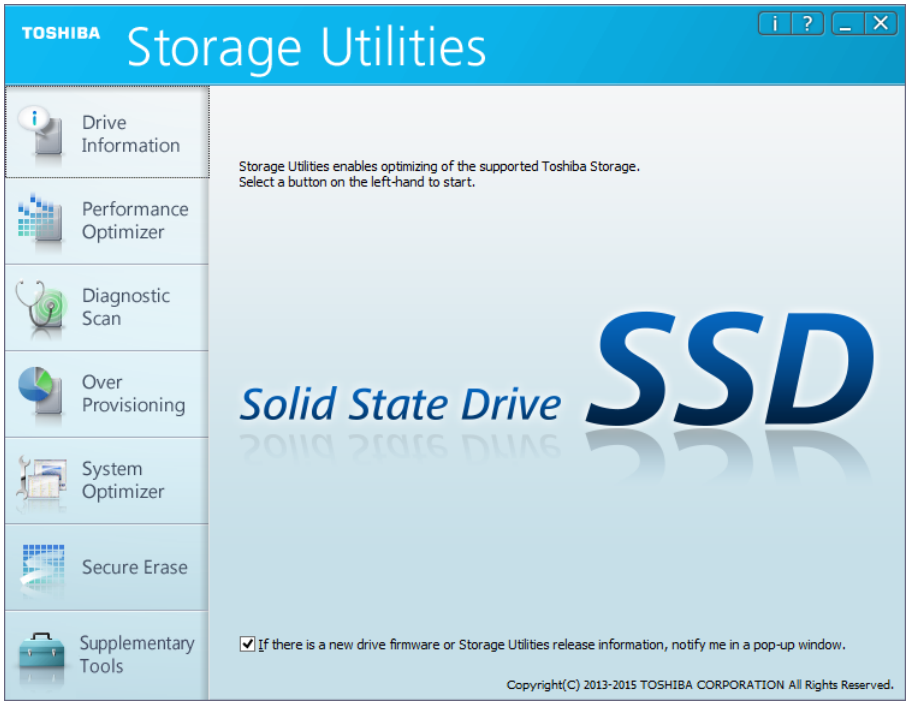
TOSHIBA
Leading Innovation

# TOSHIBA Storage Utilities

## Version 3.00

## User's Manual
## Version 1.0


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
Storage Utilities enables optimizing of the supported Toshiba Storage.
Select a button on the left-hand to start.
Solid State Drive
SSD
If there is a new drive firmware or Storage Utilities release information, notify me in a pop-up window.
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## Contents


Notice ..... 2
DISCLAIMER ..... 2
About Trademarks ..... 2
Safety Precautions ..... 4
1. Introduction ..... 6
2. System Requirements ..... 7
3. Installation Guide ..... 8
4. Storage Utilities Usage ..... 11
4.1. Start Storage Utilities ..... 11
4.2. Drive Information ..... 13
4.2.1. Summary ..... 13
4.2.2. Support Features ..... 16
4.3. Performance Optimizer ..... 17
4.4. Diagnostic Scan ..... 18
4.5. Over Provisioning ..... 19
4.6. System Optimizer ..... 20
4.7. Secure Erase ..... 21
4.8. Supplementary Tools ..... 24
4.8.1. Bootable USB Creator ..... 24
4.8.2. Steps for Bootable CD/DVD ..... 26
4.8.3. USB Flash Drive Capacity Restore ..... 28
4.9. Operation Features on Linux Operating System ..... 29
4.9.1. How to boot from the bootable media ..... 29
4.9.2. How to Run Secure Erase on Linux Operating System ..... 30
4.9.3. How to Run Drive Backup on Linux Operating System ..... 32
4.10. Scheduler ..... 34
4.11. Log Information ..... 35
4.12. Export System Information ..... 36


## Explanation of marks in this document

**Information**

Describes functions, restrictions, and matters for reference.



**Note**

Describes additional instructions and notes.

# Safety Precautions

This section lists important precautions which users of our product(s) (and anyone else) should observe in order to avoid injury to human body and damage to property and to ensure safe and correct use of our products. Please be sure that you understand the meanings of the labels and graphic symbols described below before you move on to the detailed descriptions of the precautions, and comply with the precautions stated.

Explanation of Labels

| ***NOTICE*** |
| --- |
| Indicates practices that may cause property damage[1] and other problems, but not personal injury |

1. Property damage is defined as damage to a customer or third party's machines and equipment.

Explanation of Graphic Symbols

| **Prohibited** | **Instructions** |
| --- | --- |
| Indicates prohibited actions. | Indicates actions that must be undertaken for safety purposes. |

## General Use

| NOTICE | |
|---|---|
| **Prohibited** | Do not remove the drive from your system while the system is powered on. It may cause damage to the drive. |
| **Prohibited** | Do not change any configuration files of this application. To do so could harm your system. |
| **Instructions** | If your system or the Storage Utilities is terminated abnormally while Storage Utilities is running, your system or the drive may be damaged or data may be lost. Please backup your data before you use the Storage Utilities. |

## Use of Secure Erase and Drive Backup

| NOTICE | |
|---|---|
| **Prohibited** | Do not power off while the Secure Erase or Drive Backup is running as this could corrupt the drive or your system. |
| **Prohibited** | Do not run Secure Erase or Drive Backup on a battery driven system. Be sure to supply power to the system via the AC adapter. |
| **Instructions** | Be sure to backup of your data before erasing data or backing up drive because data erased by Secure Erase or data overwritten by Drive Backup cannot be recovered. |
| **Instructions** | The bootable media creating process will delete all your data stored on the media. Back up your data before creating any bootable media. |
| **Instructions** | If your system or the Storage Utilities is terminated abnormally while Secure Erase is running, the drive may be in a password lock state. If the drive is in a password lock (Security Locked) state, please contact a customer support center. |

# 1. Introduction

This manual describes the procedure for installing and using TOSHIBA Storage Utilities (hereinafter “Storage Utilities”). Please read carefully the DISCLAIMER and Safety Precautions section before using the application Storage Utilities.

The Storage Utilities is software for management of TOSHIBA Solid State Drives (hereafter “TOSHIBA SSDs”) and optimize their performance.

The Storage Utilities provides the following features:

- **Drive Information**
  Displays various information of the drives
- **Performance Optimizer**
  Optimizes performance of the TOSHIBA SSD by TRIM command
- **Diagnostic Scan**
  Scans the whole or part of the TOSHIBA SSD for read errors
- **Over Provisioning**
  Reserves free space in the TOSHIBA SSD to improve performance
- **System Optimizer**
  Tunes your system configuration in a manner designed to optimize performance of the system drive
- **Secure Erase**
  Erases all data on the TOSHIBA SSD
- **Supplementary Tools**
  Provides Linux® bootable media creation function for data erasing and drive backup and USB flash drive capacity restore function.

# 2. System Requirements

Storage Utilities requires the following:

**a) Supported SSDs**

- TOSHIBA SSD Q300 Series
  Model Number on the label (the part number printed on the bottom of packaging box):
  HDTS712 (HDTS712*ZSTA), HDTS724 (HDTS724*ZSTA), HDTS748 (HDTS748*ZSTA), HDTS796 (HDTS796*ZSTA)
- TOSHIBA SSD Q300 Pro Series
  Model Number on the label (the part number printed on the bottom of packaging box):
  HDTS412 (HDTS412*ZSTA), HDTS425 (HDTS425*ZSTA), HDTS451 (HDTS451*ZSTA)

**Note: An asterisk mark (*) is different for each destination.**

**b) Supported Hardware**

Computers that satisfy requirements of supported operating system.

**c) Disk space**

12 MB of available disk space

**d) Supported operating systems**

- Microsoft® Windows 8.1 (x86 and x64)
- Microsoft Windows 8 (x86 and x64)
- Microsoft Windows® 7 (x86 and x64) with SP1

**e) File system**

Works only on storages formatted with NTFS.

**f) Screen resolution**

32 bits color and greater than 800 x 600 pixels

**g) Adobe® Reader X or later**

**h) Internet Explorer® 8 or later**

**Information**

- When DPI size is set at more than 100%, the Storage Utilities application window may not be displayed properly.
- Storage Utilities is designed to work with single drives, but does not work with drives that are part of RAID configurations.
- Storage Utilities does not work with drives that are encrypted by software.
- Storage Utilities does not work with the drives with USB connections.

# 3. Installation Guide

To install Storage Utilities follow these steps:

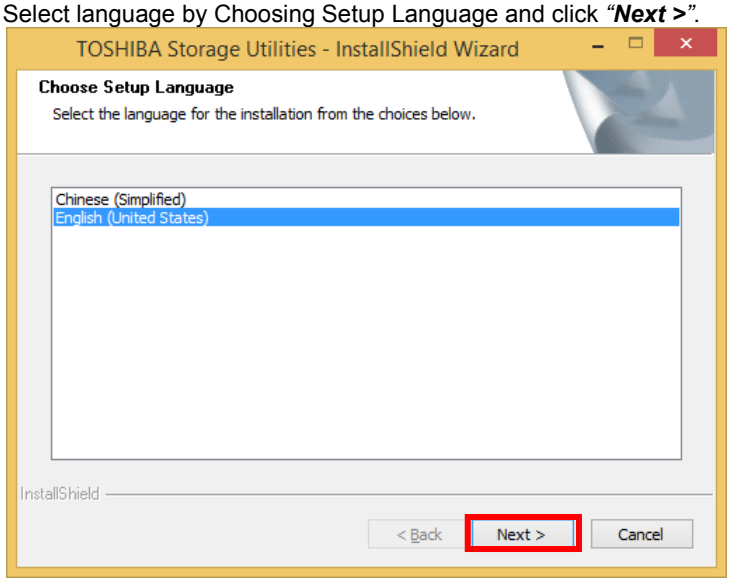
**Note**

- Requires username and password of administrator account in order to be installed by general users.

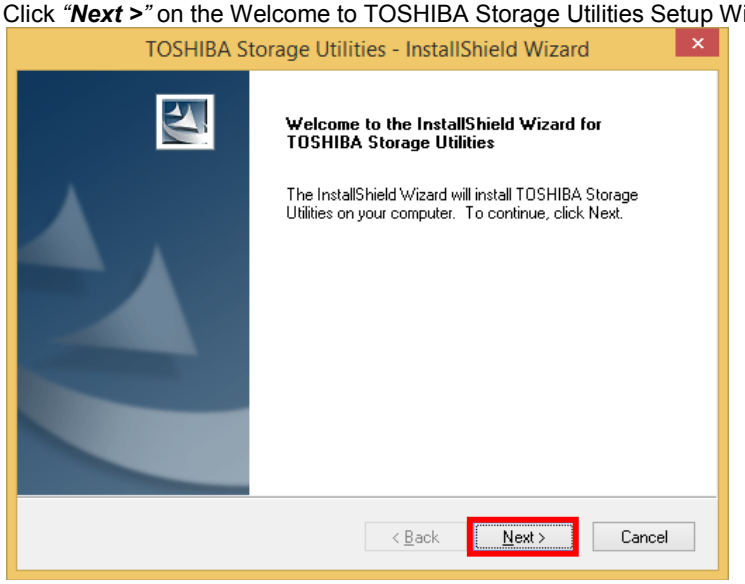
1) Save the *"Storage Utilities_v3.00.exe"* to a folder on your computer.

2) Double-click the *"Storage Utilities_v3.00.exe"* to start the Storage Utilities Setup Wizard.

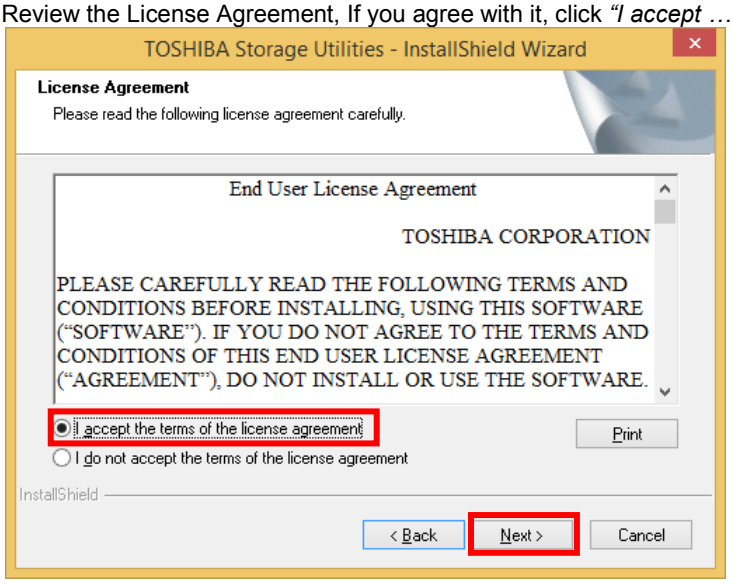
3) Select language by Choosing Setup Language and click ***"Next >"***.



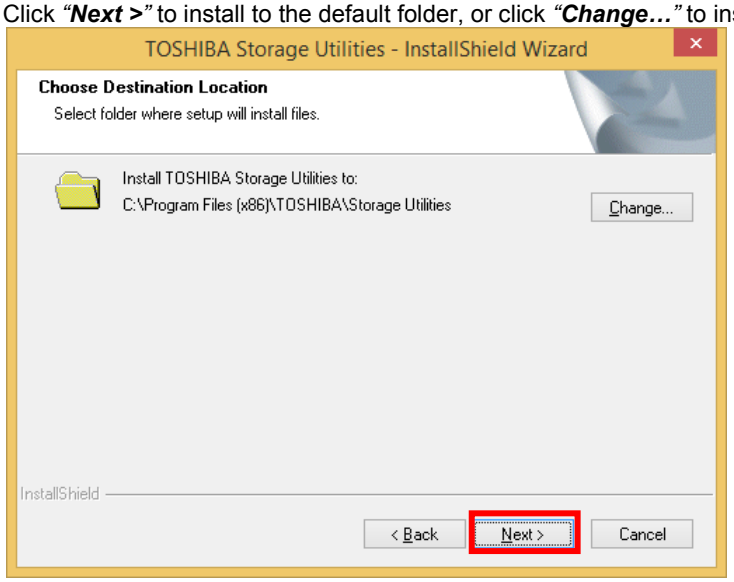

4) Click ***"Next >"*** on the Welcome to TOSHIBA Storage Utilities Setup Wizard.


TOSHIBA Storage Utilities - InstallShield Wizard
Welcome to the InstallShield Wizard for TOSHIBA Storage Utilities
The InstallShield Wizard will install TOSHIBA Storage Utilities on your computer. To continue, click Next.
< Back
Next >
Cancel

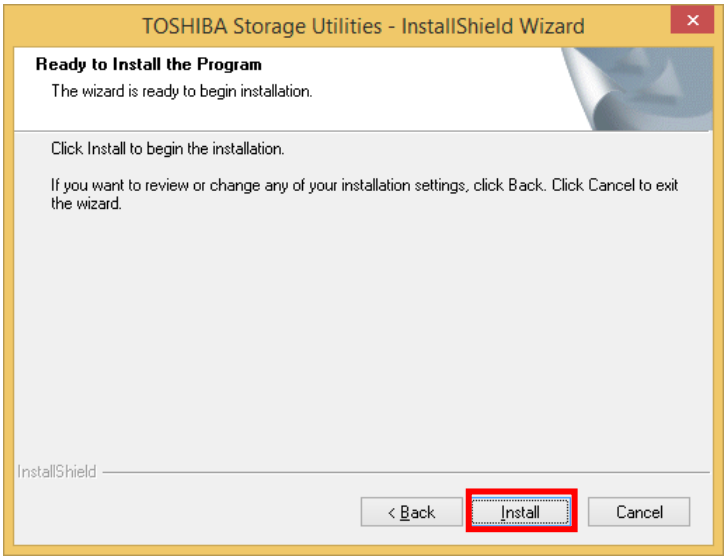
5) Review the License Agreement, If you agree with it, click *"I accept …"* and then click ***"Next >"***.


TOSHIBA Storage Utilities - InstallShield Wizard
License Agreement
Please read the following license agreement carefully.
End User License Agreement
TOSHIBA CORPORATION
PLEASE CAREFULLY READ THE FOLLOWING TERMS AND CONDITIONS BEFORE INSTALLING, USING THIS SOFTWARE ("SOFTWARE"). IF YOU DO NOT AGREE TO THE TERMS AND CONDITIONS OF THIS END USER LICENSE AGREEMENT ("AGREEMENT"), DO NOT INSTALL OR USE THE SOFTWARE.
I accept the terms of the license agreement
I do not accept the terms of the license agreement
Print
InstallShield
< Back
Next >
Cancel

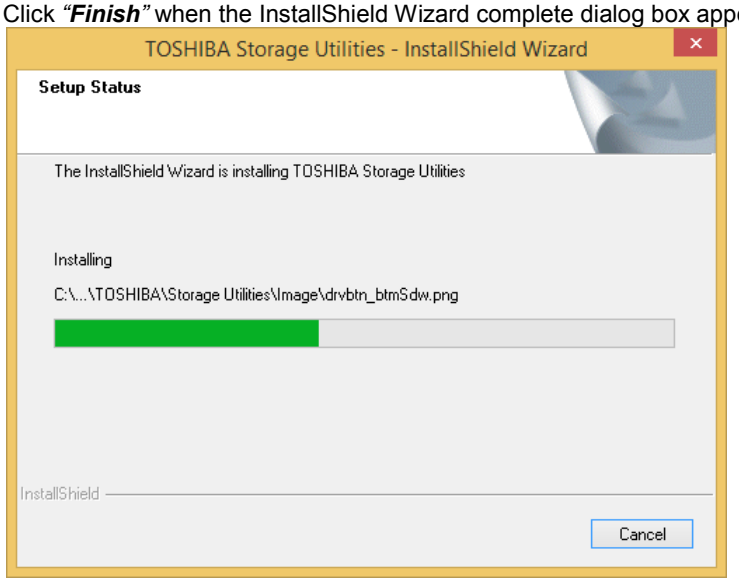
6) Click ***"Next >"*** to install to the default folder, or click ***"Change…"*** to install to a different folder and then click ***"Next >"***.

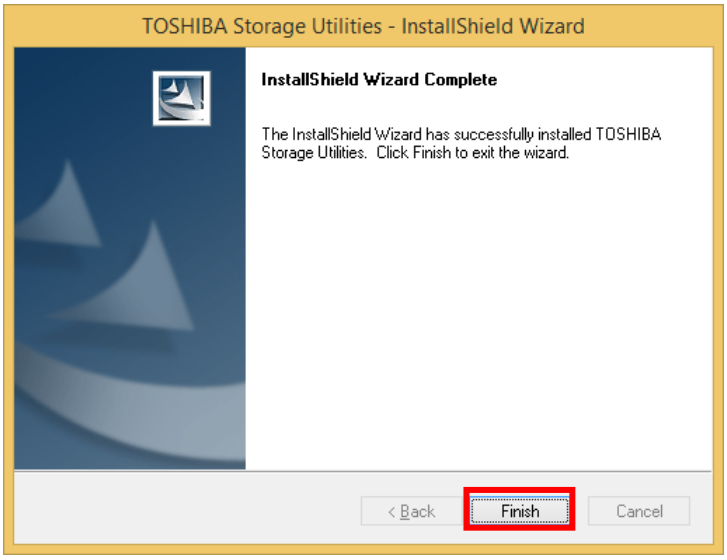



7) Click ***"Install"*** to start the installation.


TOSHIBA Storage Utilities - InstallShield Wizard
Ready to Install the Program
The wizard is ready to begin installation.
Click Install to begin the installation.
If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.
InstallShield
< Back
Install
Cancel

8) Click *"**Finish**"* when the InstallShield Wizard complete dialog box appears.





TOSHIBA Storage Utilities - InstallShield Wizard
InstallShield Wizard Complete
The InstallShield Wizard has successfully installed TOSHIBA Storage Utilities. Click Finish to exit the wizard.
< Back
Finish
Cancel

# 4. Storage Utilities Usage

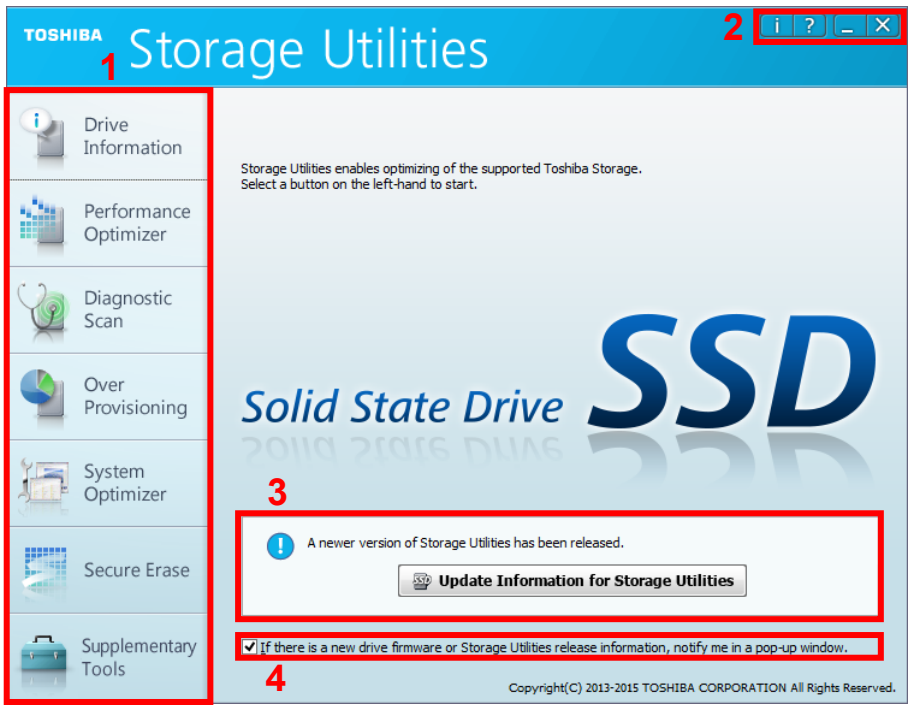
## 4.1. Start Storage Utilities

You can start the Storage Utilities application by one of the following ways:

**Note**

- Requires username and password of administrator account in order to be started by a general user.

- Click the *"Start"* button then choose *"All Programs"* -> *"TOSHIBA"* -> *"Storage Utilities"* -> *"Storage Utilities"*
- Click on *"Storage Utilities"* icon on the system tray and select *"Open"* from the pop-up menu.




**1 Menu**

| | |
|---|---|
| Drive Information | : Goes to the Drive Information screen (See 4.2. Drive Information) |
| Performance Optimizer | : Goes to the Performance Optimizer screen (See 4.3. Performance Optimizer) |
| Diagnostic Scan | : Goes to the Diagnostic Scan screen (See 4.4. Diagnostic Scan) |
| Over Provisioning | : Goes to the Over Provisioning screen (See 4.5. Over Provisioning) |
| System Optimizer | : Goes to the System Optimizer screen (See 4.6. System Optimizer) |
| Secure Erase | : Goes to the Secure Erase screen (See 4.7. Secure Erase) |
| Supplementary Tools | : Goes to the Supplementary Tools screen (See 4.8. Supplementary Tools) |

**2 Title Button**

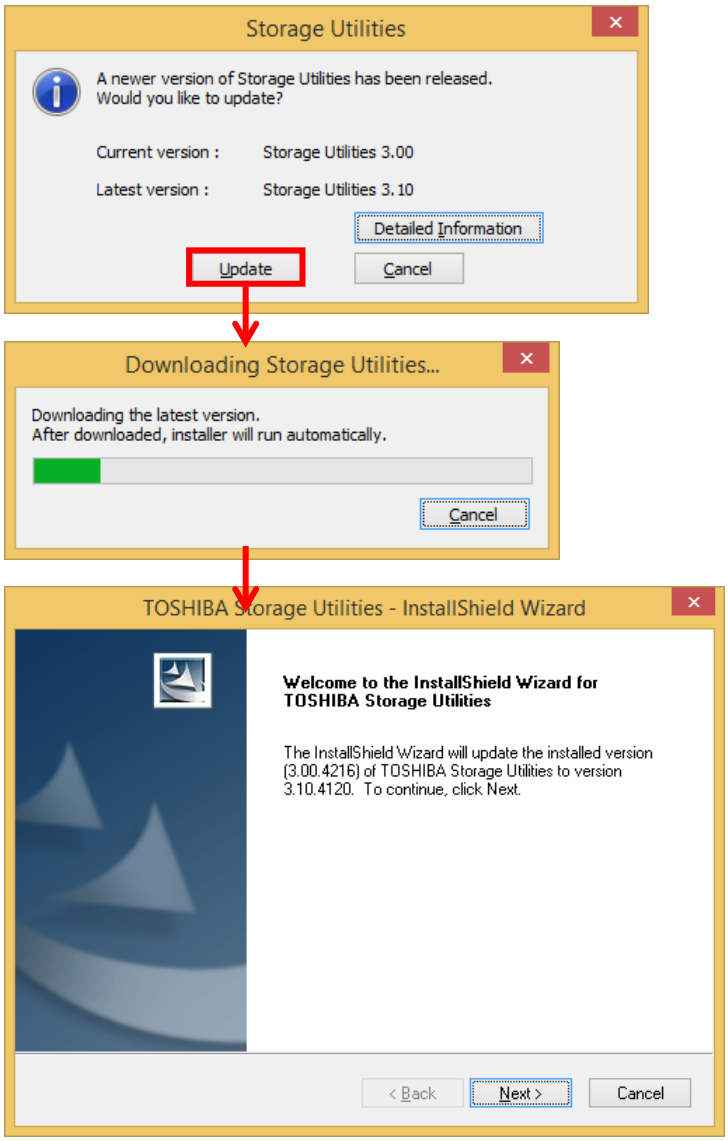
| | |
|---|---|
| i (Information) | : Displays the product information and license agreement. |
| ? (Help) | : Displays User's Manual |
| _ (Minimize) | : Minimizes the Storage Utilities application |
| X (Exit) | : Closes the Storage Utilities application |

**3 Update Information for Storage Utilities**

Display if there is update information for Storage Utilities.
Click "***Update Information for Storage Utilities***", display current version and the latest version of the Storage Utilities. Click "***Detailed Information***" to see more detailed information.
Click "***Update***" to start download of Storage Utilities and you can update to the latest version.

**Note**

- If update target file has been locked, you may need to restart your system.
- To get updated information and detailed information, and to update, you need to connect to the Internet.


Storage Utilities
A newer version of Storage Utilities has been released.
Would you like to update?
Current version : Storage Utilities 3.00
Latest version : Storage Utilities 3.10
Detailed Information
Update
Cancel
Downloading Storage Utilities...
Downloading the latest version.
After downloaded, installer will run automatically.
Cancel
TOSHIBA Storage Utilities - InstallShield Wizard
Welcome to the InstallShield Wizard for TOSHIBA Storage Utilities
The InstallShield Wizard will update the installed version (3.00.4216) of TOSHIBA Storage Utilities to version 3.10.4120. To continue, click Next.
< Back
Next >
Cancel

**4** **Checkbox of Update Notice for Firmware / Software**

If you want to be notified about firmware and software update information by a pop-up window, enable the checkbox.

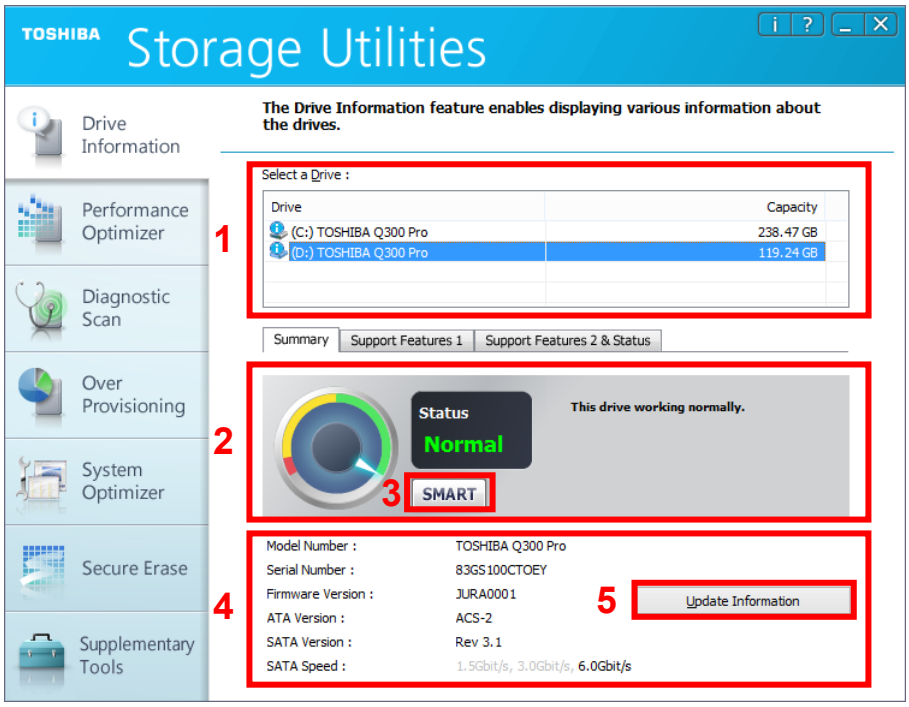
If checkbox is enabled and it is connected to the Internet, it detects update information at computer startup and every 24 hours.

## 4.2. Drive Information

The Drive Information displays summary and support features about the drives connected to your system.

### 4.2.1. Summary

The "***Summary***" tab displays status and summary of the selected drive.




**1** **Select a Drive**

Displays the list of all available drives on your system.

In the Select a Drive list, click the name of drive for which you want to view the information.

**Information**

- Displays warning icon ⚠ on drive list when the status is caution or warning.
- Displays information icon ⓘ on the drive list when there is firmware update.
- If the status is caution or warning, and if there is firmware update, displays warning icon ⚠.
- When a SSD is Read Only Mode (status is warning), it may take time to recognize the SSD, or may not recognize the SSD.

**2** **Status**

Displays the information about status of the selected drive.

Based on the indications of the SSD endurance, the status shall be displayed as normal, caution, or warning.

The meter indicates the change in the status.

When using NAND Flash memory storage, the individual storage cell can be gradually damaged by frequent reading and/or rewriting.

Normal (green): Drive working normally.

Caution (yellow): Rewrite cycle has exceeded the rated cycle for the device. The rated cycle is the upper limit designated by TOSHIBA for operational reliability. It is strongly recommended to back up the drive and replace it, as the drive has exceeded the limit and reliability may be compromised.

Warning (red): Drive is Read Only Mode by lifetime or failure. Try to rescue the data by backing up the drive immediately. Discontinue use of the drive once data has been backed up to a separate device. If the drive is in Read Only Mode, you may still be able to read stored data in order to back up the data. However, if the mode is caused by another issue, back up may not be possible.

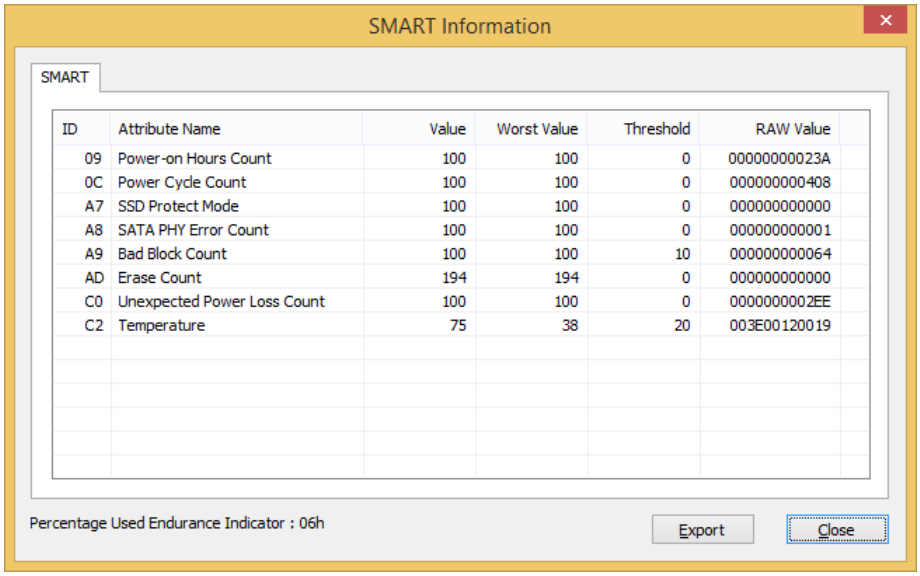
Please see "4.9.3.How to Run Drive Backup on Linux Operating System" for drive backup.

## 3 SMART Information

Click "***SMART***" to display the SMART information. Click *"**Export**"* to export the SMART information to CSV format file. Then, right-click to use copying function.

**Information**

- SMART information, necessary to maintain compatibility with hard disk drives does not change and is not displayed.
- Displays warning icon ⚠ on the left of ID when the value of SMART attribute falls under the threshold value.


SMART Information
SMART
ID Attribute Name Value Worst Value Threshold RAW Value
09 Power-on Hours Count 100 100 0 00000000023A
0C Power Cycle Count 100 100 0 000000000408
A7 SSD Protect Mode 100 100 0 000000000000
A8 SATA PHY Error Count 100 100 0 000000000001
A9 Bad Block Count 100 100 10 000000000064
AD Erase Count 194 194 0 000000000000
C0 Unexpected Power Loss Count 100 100 0 0000000002EE
C2 Temperature 75 38 20 003E00120019
Percentage Used Endurance Indicator : 06h
Export
Close

SMART attribute items are as follows:

| | |
|---|---|
| ID | Hex value of SMART attribute |
| Attribute Name | Name of SMART attribute |
| Value | Normalized current value of the attribute |
| Worst Value | Lowest value in the past |
| Threshold | Normalized threshold value for the drive |
| RAW Value | Raw value assigned to SMART attribute |

Detailed information about SMART attribute is as follows:

| ID | Attribute | Explanation |
|---|---|---|
| 09 | Power-on Hours Count | Value is fixed.<br>Raw Value shows the cumulative number of power-on hours since factory shipping. |
| 0C | Drive Power Cycle Count | Value is fixed.<br>Raw Value shows the cumulative number of power on/off cycles since factory shipping. |
| A7 | SSD Protect Mode | Value is fixed.<br>Raw Value (Byte 0) reports the current mode of the drive.<br>0: Read/Write Mode<br>Others: Read Only Mode |
| A8 | SATA PHY Error Count | Value is fixed.<br>Raw Value shows cumulative number of errors in SATA physical layer since factory shipping. |
| A9 | Total Bad Block Count | Value shows the normalized number of spare area in the drive. When this attribute falls below the threshold, performance of the drive may significantly slow down. |
| AD | Erase Count | Value shows the maximum normalized cumulative number of erase cycles per block since factory shipping. |
| C0 | Unexpected Power Loss Count | Value is fixed.<br>Raw Value shows the cumulative number of unexpected power loss since factory shipping. |
| C2 | Temperature | Value shows the thermal sensor value in the drive, which is subtracted the centigrade temperature from 100.<br>Raw Value shows current, minimum, and maximum centigrade temperature. |

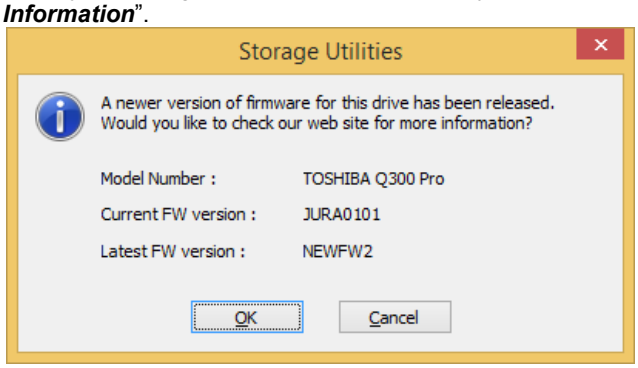
| | | |
|---|---|---|
| | | Byte1-0: Current centigrade temperature<br>Byte3-2: Minimum centigrade temperature (since factory shipping)<br>Byte5-4: Maximum centigrade temperature (since factory shipping) |

**4** **Drive Summary**

Displays model name, serial number, firmware version, ATA version, SATA version, SATA speed.

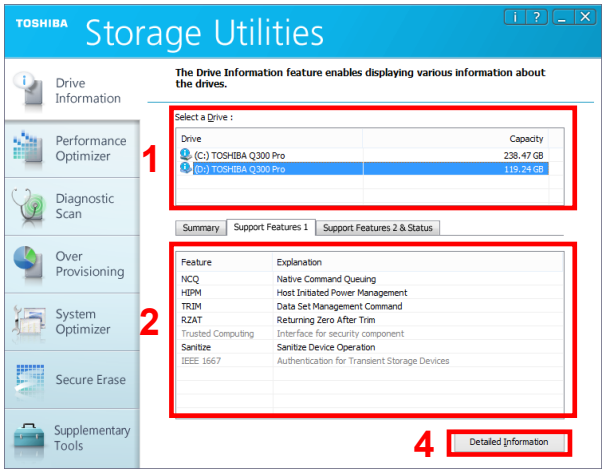
**5** **Update Information**

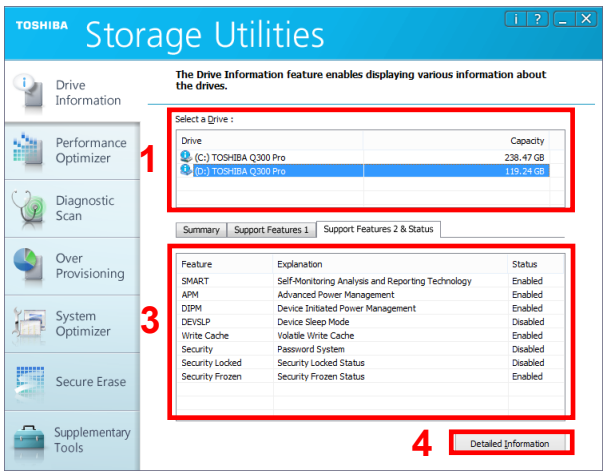
Displays updating information of firmware. If you want to refer to updating information for firmware, click "***Update Information***".



## 4.2.2. Support Features

The Support Features display detailed information of the selected drive on the "***Support Features 1***", and "***Support Features 2 & Status***" tabs.



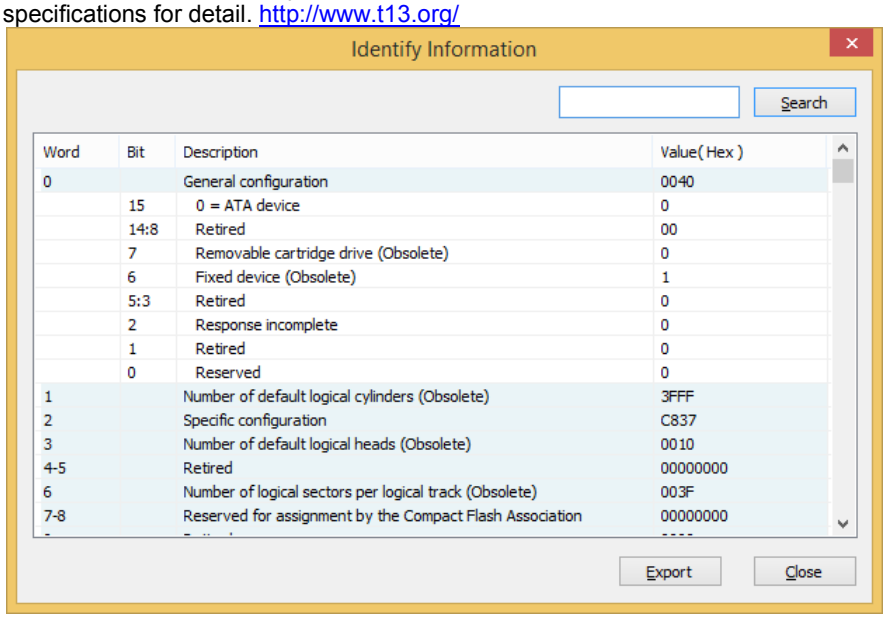




**1** **Select a Drive**
Displays the list of all available drives on your system.
In the Select a Drive list, click the name of drive for which you want to view the information.

**2** **Support Features 1**
Displays unchangeable support features of the selected drive.
Non-supported features are displayed in grey.

**3** **Support Features 2 & Status**
Displays changeable support features of the selected drive and displays for each feature the enable or disable status.
Non-supported features are displayed in grey.

**4** **Detailed Information**
Click "***Detailed Information***" to see Identify information of the selected drive. Click "***Export***" to export the detailed information to a CSV format file. Then, use the right-click to access the copying function.
Enter keyword, and click "***Search***" to search the detailed information.
Detailed Information displays the data acquired from the result of IDENTIFY DEVICE command. Refer to ATA specifications for detail. http://www.t13.org/

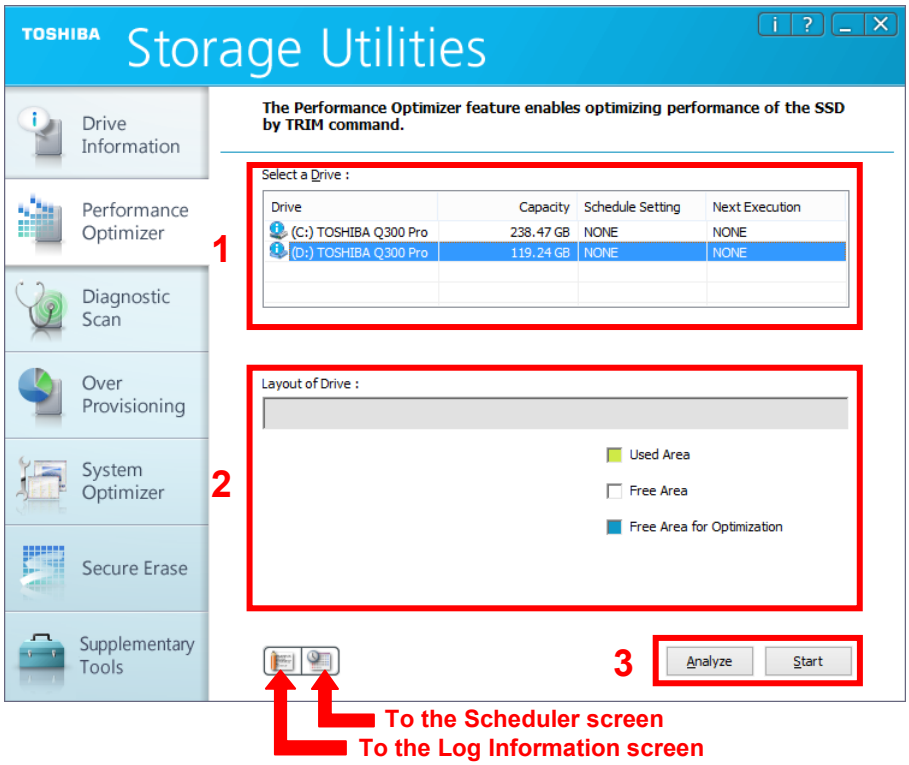


## 4.3. Performance Optimizer

The Performance Optimizer helps to keep the TOSHIBA SSD of its optimum performance with the TRIM function. This function informs the device which data is no longer valid or unused (i.e. deleted files). This reduces wear by allowing the device to no longer manage the invalid/unused data. If the operating system on your computer is Windows 7 or Windows 8 or Windows 8.1, you do not need to use this feature because Windows 7 and Windows 8 and Windows 8.1 support TRIM natively. However, please use this feature if you have disabled the setting of TRIM.
The Performance Optimizer can be run manually or automatically by using the Scheduler. The result of executing the Performance Optimizer can be viewed in the Log Information screen.

**Note**

- Do not run Defragmentation and the Performance Optimizer simultaneously. Make sure to disable Defragmentation or disable the schedule of Defragmentation before running the Performance Optimization.
- The optimization feature does not work on TOSHIBA SSD Q300.




**1** **Select a Drive**
Displays the list of all available drives on your system.
In the Select a Drive list, click the drive for which you want to optimize performance.

**2** **Layout of Drive, Progress Bar**
Displays the used area, free area, and free area for the optimization of the selected drive in different colors.
Displays progress of optimizing task and analyzing task on Progress Bar.

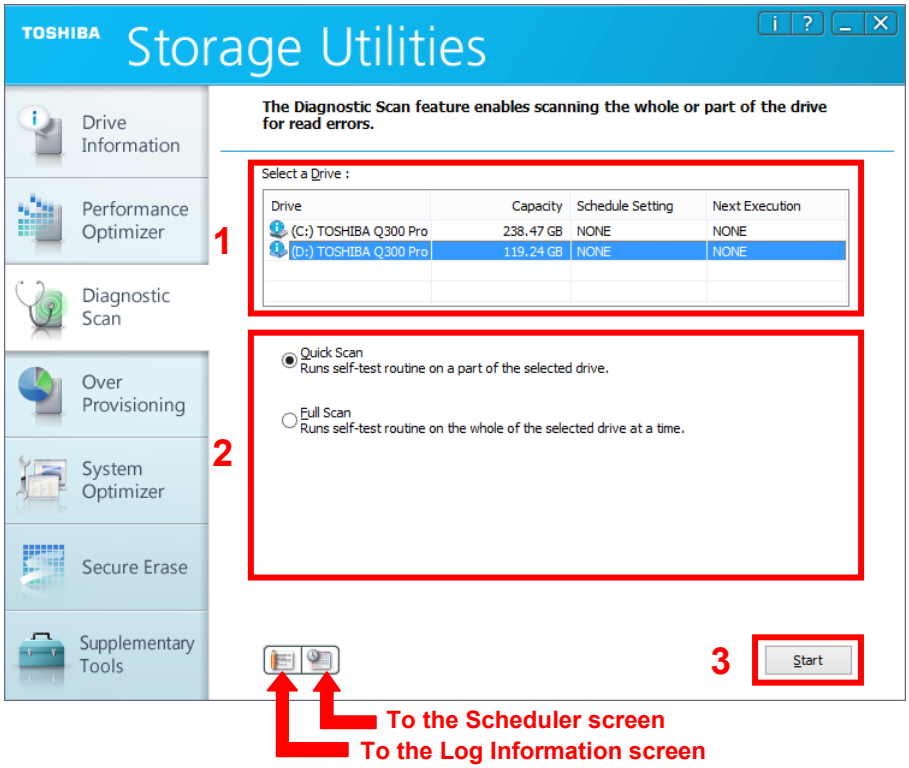
**3** **Analyze, Start / Stop**
Click "***Analyze***" to analyze the usage of the selected drive and display the analysis result in the Layout of the Drive field.
Click "***Start***" to optimize performance of the selected drive. During execution of optimization, click "***Stop***" to stop the optimization process. When finished, the execution result of performance optimization is shown in the Log Information screen.

**Information**

- The optimization feature does not work on the SSD that has less than 1 GB of free drive space.
- The optimization feature does not work while your computer is running on battery.
- The optimization feature does not work on the SSD in Read Only Mode (status is warning).

## 4.4. Diagnostic Scan

The Diagnostic Scan can scan the whole or part of the TOSHIBA SSD for read errors.
There are two kinds of the Diagnostic Scan: Quick Scan and Full Scan.
The Quick Scan runs self-test routine on one part of the drive. In the next scanning, the Quick Scan runs self-test routine on another part of the drive. When running the Quick Scan repeatedly, the whole of drive will be scanned. Typically, it takes several minutes to complete a Quick Scan. The Quick Scan can be run manually or automatically by using the Scheduler.
The Full Scan runs self-test routine on the whole drive. Typically, it may take several tens of minutes or more to complete a Full Scan. The Full Scan can be run only manually.
The result of executing the Diagnostic Scan can be viewed in the Log Information screen.




**1** **Select a Drive**
Displays the list of all available drives on your system. In the Select a Drive list, click the drive that you want to scan.

**2** **Scan, Progress Bar**
Quick Scan : Check this option to run self-test routine on one part of the selected drive.
Full Scan : Check this option to run self-test routine on the whole of the selected drive.
Displays progress of scanning task.

**3** **Start / Stop**
Click "***Start***" to scan the selected drive. During execution of the scan, click "***Stop***" to stop the scan process. When finished, the result of the scan is shown in the Log Information screen.

**Information**

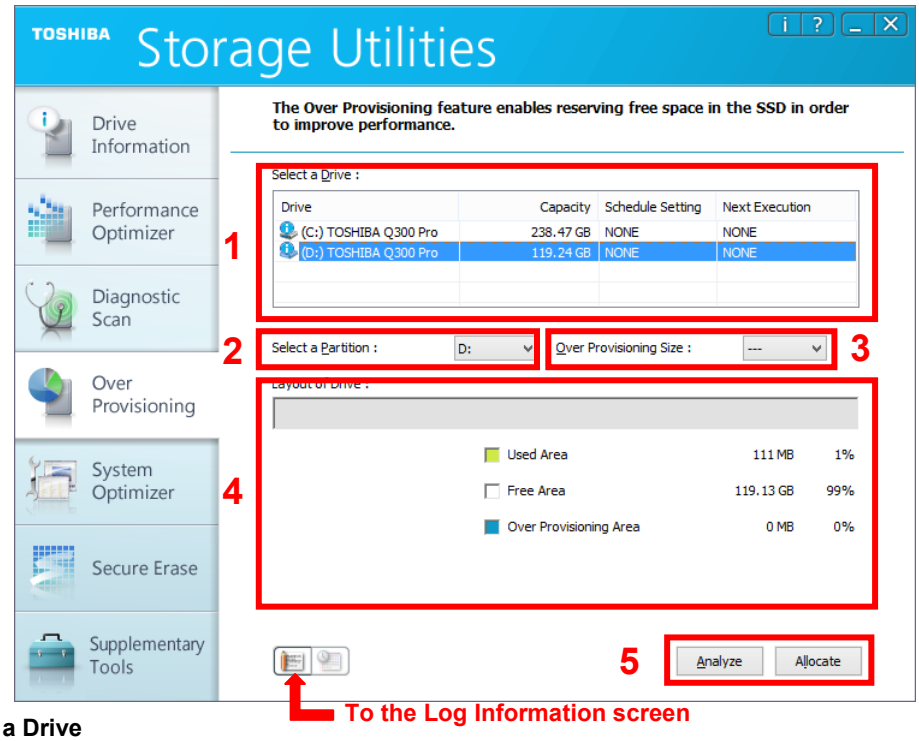
- The Diagnostic Scan feature does not work while your computer is running on battery.
- The Diagnostic Scan feature does not work on the SSD in Read Only Mode (status is warning).

## 4.5. Over Provisioning

The Over Provisioning feature allows you to reserve free space in the TOSHIBA SSD.
The reserved area in the SSD is used mainly as a work area for garbage collection. By raising the efficiency of garbage collection, it can assist in preventing performance degradation.
The sizes of reserved area can be changed from 0% to 30% of available free space. The reserve area can be allocated and released at any time. The result of executing the Over Provisioning can be viewed in the Log Information screen.

**Note**

- Do not run Defragmentation and the Over Provisioning simultaneously. Make sure to disable Defragmentation or disable the schedule of Defragmentation before running the Over Provisioning.
- The Over Provisioning feature does not work on TOSHIBA SSD Q300.




**1 Select a Drive**
Displays the list of all available drives on your system.
In the Select a Drive list, click the drive for which you want to run Over Provisioning.

**2 Select a Partition**
Select the partition on which you want to run Over Provisioning.

**3 Over Provisioning Size**
Select the percentage of reserve area to free area in the selected partition to specify the size of reserve area you want to allocate for Over Provisioning.

**4 Layout of Drive, Progress Bar**
Displays the used area, free area, and the Over Provisioning area in different colors, in the case of analyzing the selected partition. Displays the capacity and occupancy ratio in the right side of the legend of each area.
Displays progress of Over Provisioning task on Progress Bar.

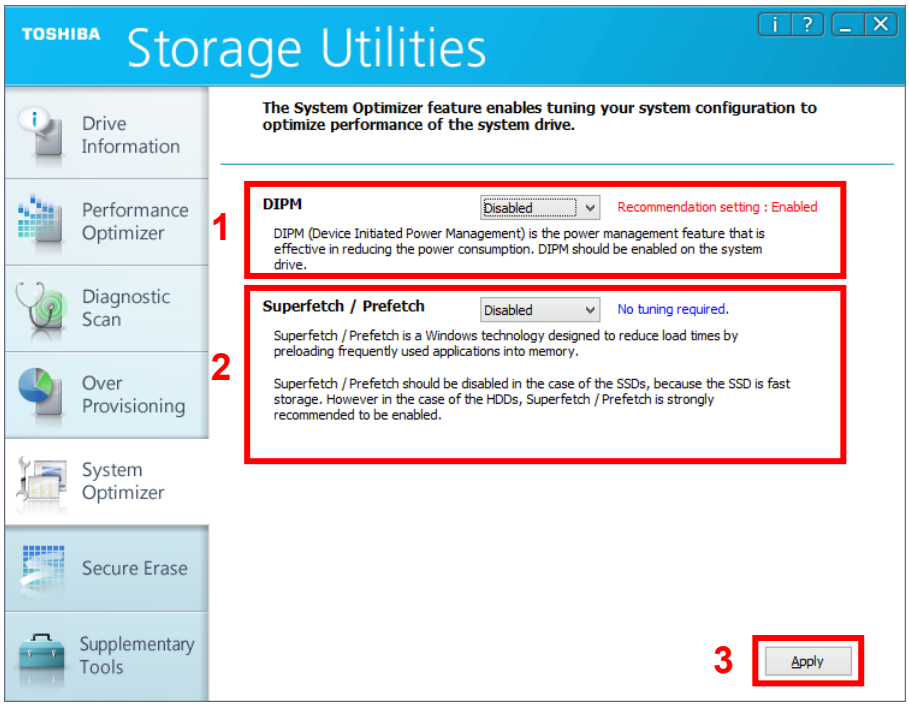
**5 Analyze, Allocate / Release**
Select the size of "**Over Provisioning Size**", and click "***Analyze***" to analyze the usage of the selected drive and display the analysis result in the Layout of Drive field. The Over Provisioning Area has not been allocated as of the analyzed stage.
Click "***Allocate***" to allocate the specified size of reserve area on the selected partition. When finished, the result of allocating is shown in the Log Information screen. Click "***Release***" to release the allocated reserve area. When finished, the result of releasing allocated reserve area is shown in the Log Information screen.

**Information**

- The Over Provisioning feature does not work on the SSD that has less than 1 GB of free drive space.
- The Over Provisioning feature does not work while your computer is running on battery.
- The Over Provisioning feature does not work on the SSD in Read Only Mode (status is warning).

## 4.6. System Optimizer

The System Optimizer feature allows you to tune your system configuration to optimize performance of the system drive.


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
The System Optimizer feature enables tuning your system configuration to optimize performance of the system drive.
DIPM
Disabled
Recommendation setting : Enabled
DIPM (Device Initiated Power Management) is the power management feature that is effective in reducing the power consumption. DIPM should be enabled on the system drive.
1
Superfetch / Prefetch
Disabled
No tuning required.
Superfetch / Prefetch is a Windows technology designed to reduce load times by preloading frequently used applications into memory.
Superfetch / Prefetch should be disabled in the case of the SSDs, because the SSD is fast storage. However in the case of the HDDs, Superfetch / Prefetch is strongly recommended to be enabled.
2
3
Apply

**1** **DIPM**

Displays the current setting and the recommended setting for DIPM (Device Initiated Power Management). Select the value you want to set.

DIPM is the power management feature that is effective in reducing the power consumption. DIPM should generally be enabled on the drive.

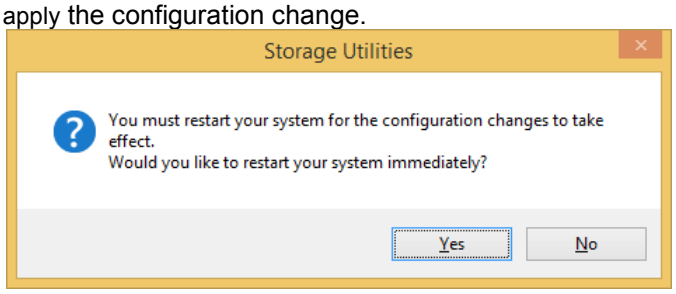
**2** **SuperFetch® / Prefetch**

Displays the current setting and the recommended setting for SuperFetch / Prefetch. Select the value you want to set.

Windows SuperFetch /Windows Prefetch is a Windows technology designed to reduce load times by preloading frequently used applications into memory. SuperFetch/Prefetch is generally not needed for TOSHIBA SSDs and should be disabled. In the case of HDD, SuperFetch/Prefetch is strongly recommended to be enabled.

**3** **Apply**

Click "***Apply***" to apply the specified setting value on your system. You will likely need to restart your system to apply the configuration change.


Storage Utilities
You must restart your system for the configuration changes to take effect.
Would you like to restart your system immediately?
Yes
No

## 4.7. Secure Erase

Secure Erase is designed to erase all data stored on the TOSHIBA SSD including user data, OS or recovery OS.
There are four kinds of Secure Erase. Normal Secure Erase and Enhanced Secure Erase are part of Security Erase Unit command. Block Erase (BLOCK ERASE EXT command) and Cryptographic Erase (CPRYPTO SCRAMBLE EXT command) are part of Sanitize Device feature set.

Block Erase and Cryptographic Erase can be selected for drives that support the Sanitize Device feature set.
We recommend Block Erase or Cryptographic Erase, which are safer than Normal Secure Erase and Enhanced Secure Erase, when the drives support the Sanitize Device feature set.
The table below shows four types of Secure Erase methods and whether they are available on the Non-SED (Not Self Encrypting Drive) and/or the SED (Self Encrypting Drive).

| | Non-SED | SED |
|---|---|---|
| Normal Secure Erase | Logical Erase<br>(Physical Erase) (*1) | Logical Erase<br>Crypto Erase |
| Enhanced Secure Erase | Logical Erase<br>Physical Erase | Logical Erase<br>Crypto Erase |
| Block Erase | Logical Erase<br>Physical Erase | Logical Erase<br>Physical Erase<br>Crypto Erase |
| Cryptographic Erase | - | Crypto Erase |

Logical Erase : Runs a logical erasing process designed to clear data on the logical-physical conversion table.
Physical Erase : Runs a physical erasing process designed to clear data on NAND flash memory.
Crypto Erase : Runs a sanitize operation designed to change the internal encryption keys that are used for user data.
(*1) In the case of TOSHIBA SSD Q300, Normal Secure Erase runs physical erase.

There are two versions of Secure Erase, one on Windows OS, and one on Linux OS.
The Secure Erase on Windows OS cannot be run on the primary drive (bootable drive), but can be run on the secondary drive. Refer to “4.9.2.How to Run Secure Erase on Linux Operating System”, when you perform Secure Erase by the primary drive (bootable drive).

The table below shows the support for Secure Erase on Windows OS. Please use Secure Erase on Linux OS if your system is non-supported OS.

| | Windows 7 | Windows 8 | Windows 8.1 |
|---|---|---|---|
| Normal Secure Erase | Support | Non-support | Non-support |
| Enhanced Secure Erase | Support | Non-support | Non-support |
| Block Erase | Support | Support | Non-support |
| Cryptographic Erase | Support | Support | Non-support |



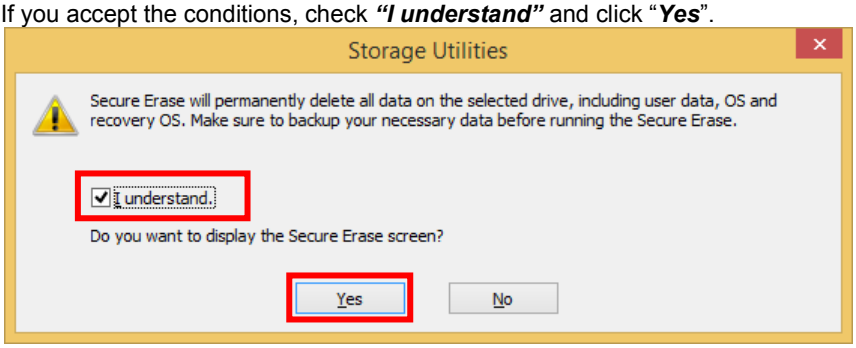
**Note**

- Remove the user password on the drive before running the Secure Erase. (For information on how to remove the user password on the drive, refer to your system’s user manual.)

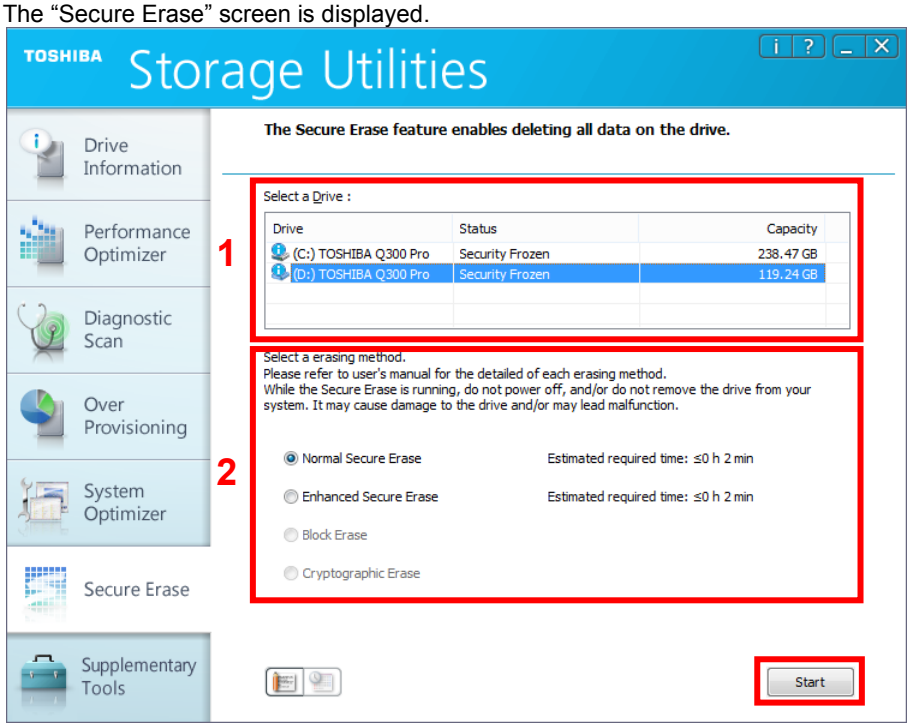
To run the Secure Erase on Windows operating systems, perform the following steps:

1) Click Secure Erase menu.

2) If you accept the conditions, check ***"I understand"*** and click "***Yes***".


Storage Utilities
Secure Erase will permanently delete all data on the selected drive, including user data, OS and recovery OS. Make sure to backup your necessary data before running the Secure Erase.
I understand.
Do you want to display the Secure Erase screen?
Yes
No

3) The "Secure Erase" screen is displayed.




**1** On the drive list, select the drive on which you want to run Secure Erase.

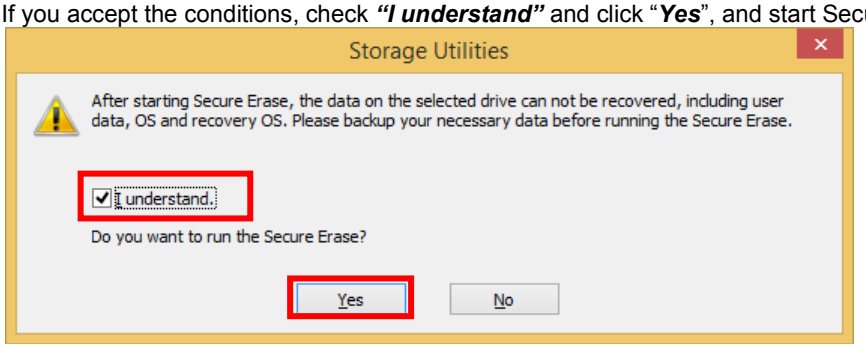
**2** Select erasing method.
Normal Secure Erase and Enhanced Secure Erase will be displayed estimated required time.
The estimated required time show the estimated time in 2 minutes that obtained from Word 89 and Word 90 on "IDENTIFY DEVICE data". It shows in hour (h) and minute (min).

**Information**

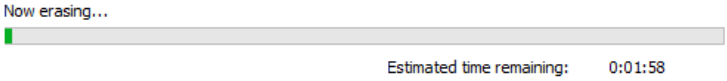
- Normal Secure Erase and Enhanced Secure Erase do not work with the status of Security Locked or Security Frozen.
- Block Erase and Cryptographic Erase do not work with the status of Security Locked or Sanitize Frozen.
- Normal Secure Erase time and Enhanced Secure Erase time may exceed the estimated required time depending on the operating conditions.

**3** Click "***Start***".

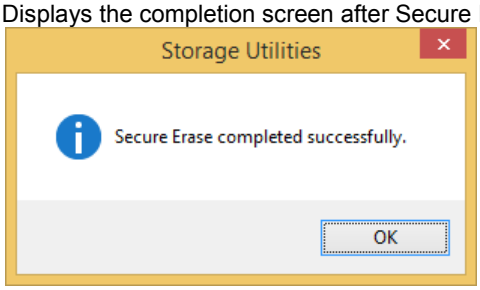
4) If you accept the conditions, check ***"I understand"*** and click "***Yes***", and start Secure Erase.


Storage Utilities
After starting Secure Erase, the data on the selected drive can not be recovered, including user data, OS and recovery OS. Please backup your necessary data before running the Secure Erase.
I understand.
Do you want to run the Secure Erase?
Yes
No

5) Displays the progress for the Secure Erase task on Progress Bar.




6) Displays the completion screen after Secure Erase finished.




**Information**

- The length of the erasure time depends on the capacity of the target drive.
- The Secure Erase feature on Windows OS does not work on the SSD in Read Only Mode (status is warning). Refer to "4.9.2.How to Run Secure Erase on Linux Operating System".

## 4.8. Supplementary Tools

The Supplementary Tools feature enables additional functions for the Storage,

### 4.8.1. Bootable USB Creator

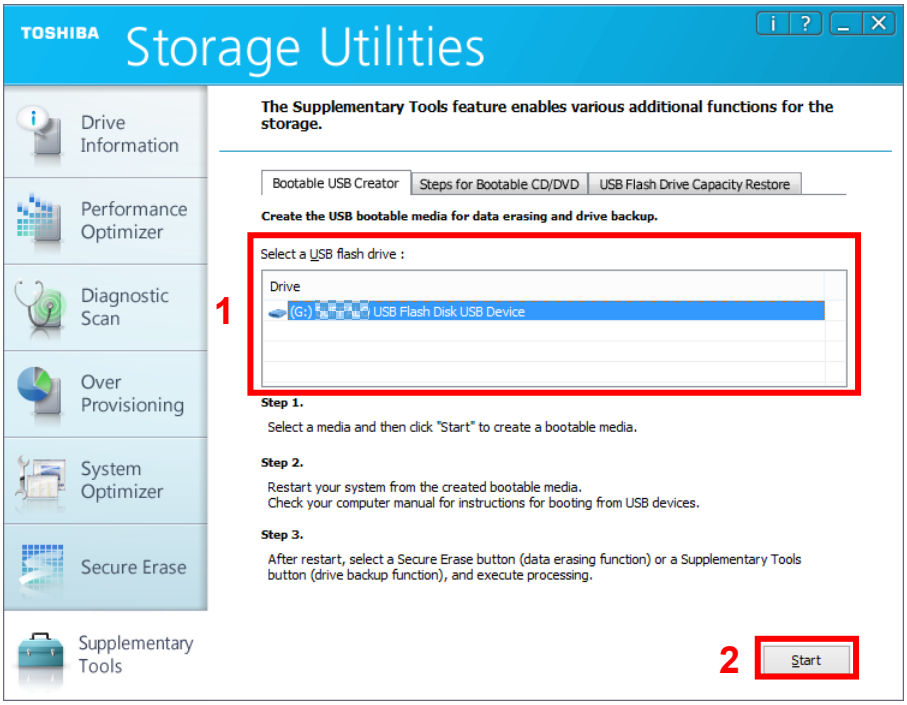
The Bootable USB Creator creates the bootable USB of Linux operating systems for erasing data and drive backup. Creating the bootable USB requires the capacity of about 250 MB. Prepare a USB flash drive of 256MB or above to create the bootable USB.

**Note**

- If you create the bootable USB for the first time, you need to connect to the Internet to download the bootable module.

Create a bootable USB by following steps.

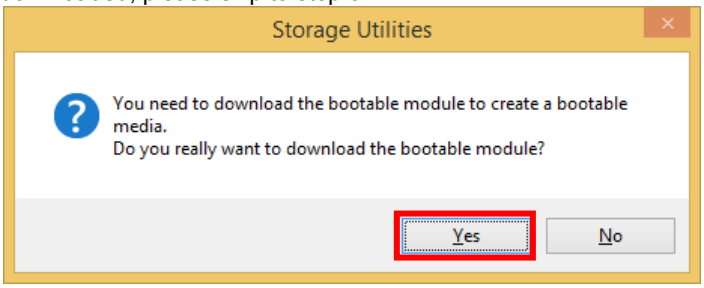
1) Select "***Bootable USB Creator***" tab.


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
The Supplementary Tools feature enables various additional functions for the storage.
Bootable USB Creator
Steps for Bootable CD/DVD
USB Flash Drive Capacity Restore
Create the USB bootable media for data erasing and drive backup.
Select a USB flash drive :
Drive
(G:) USB Flash Disk USB Device
1
Step 1.
Select a media and then click "Start" to create a bootable media.
Step 2.
Restart your system from the created bootable media.
Check your computer manual for instructions for booting from USB devices.
Step 3.
After restart, select a Secure Erase button (data erasing function) or a Supplementary Tools button (drive backup function), and execute processing.
2
Start

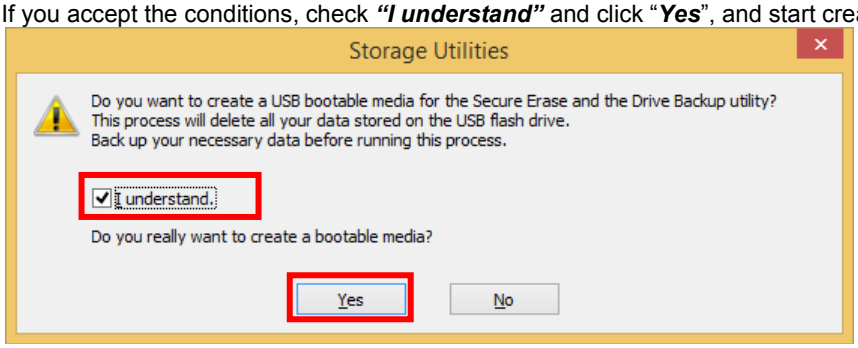
**1** Select a USB flash drive for creating the bootable USB from the drive list box.
If a USB is not shown in the drive list box, close the Storage Utilities and insert an empty USB into a port on your system before starting the Storage Utilities. Then start the Storage Utilities.

**2** Click "***Start***" to create a bootable USB.
While creating the bootable USB, click "***Stop***" to stop the process.
A Progress Bar is displayed while the system creates a bootable USB.

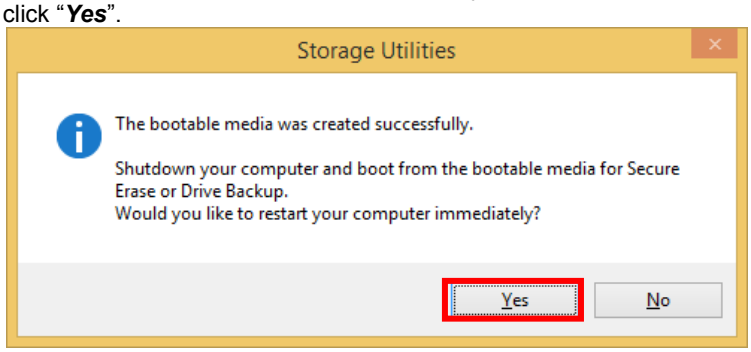
2) When you create the bootable USB for the first time, if you accept the conditions, then click "***Yes***", You can start downloading the bootable module. During the download, the progress screen is displayed. If you have already downloaded, please skip to step **3**.


Storage Utilities
You need to download the bootable module to create a bootable media.
Do you really want to download the bootable module?
Yes
No

3) If you accept the conditions, check ***"I understand"*** and click "***Yes***", and start creating the bootable USB.


Storage Utilities
Do you want to create a USB bootable media for the Secure Erase and the Drive Backup utility?
This process will delete all your data stored on the USB flash drive.
Back up your necessary data before running this process.
I understand.
Do you really want to create a bootable media?
Yes
No

4) After the completion of the bootable USB, if you want to shutdown and restart your system from the bootable USB, click "***Yes***".


Storage Utilities
The bootable media was created successfully.
Shutdown your computer and boot from the bootable media for Secure Erase or Drive Backup.
Would you like to restart your computer immediately?
Yes
No

**Information**

- Size of USB flash drive will be set to about 250MB when creating the bootable USB. See "4.8.3. USB Flash Drive Capacity Restore" for restoring the capacity of USB flash drive.
- Your system may not restart using the created bootable USB depending on some computer operations. (See 4.9.1.How to boot from the bootable media)

### 4.8.2. Steps for Bootable CD/DVD

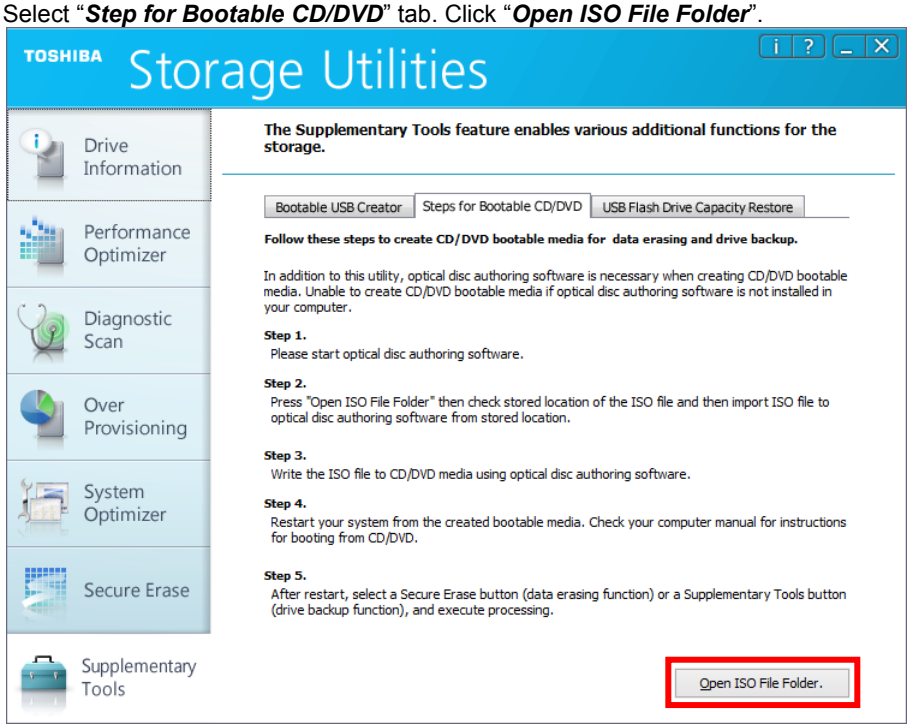
"***Steps for Bootable CD/DVD***" tab describes the steps to create CD/DVD bootable media for data erasing and drive backup.
The Storage Utilities does not include any CD/DVD media creation functions. Besides the Storage Utilities, optical disc authoring software is necessary when creating CD/DVD bootable media. You will be unable to create CD/DVD bootable media if optical disc authoring software is not installed in your computer.

**Note**

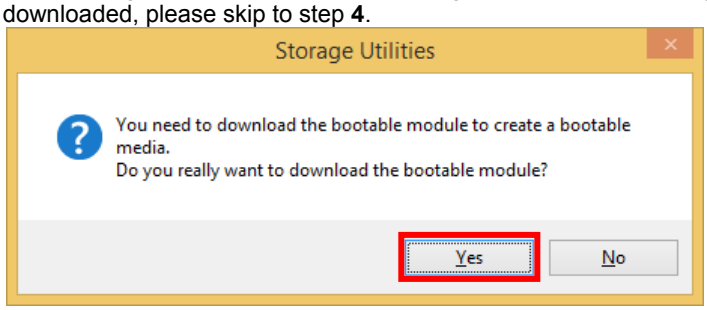
- Please follow the specification of optical disc authoring software on writing operation of CD/DVD.
- If you create CD/DVD bootable media for the first time, you need to connect to the Internet to download the bootable module.

1) Start optical disc authoring software.

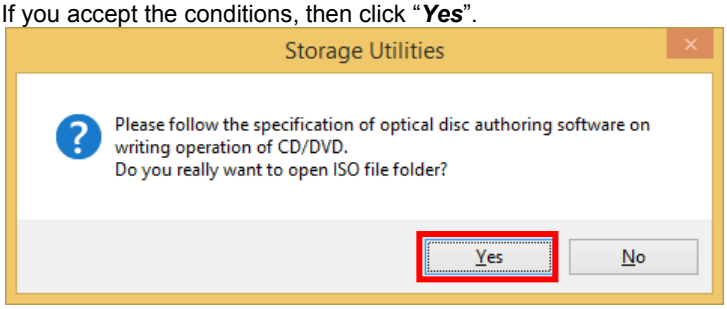
2) Select "***Step for Bootable CD/DVD***" tab. Click "***Open ISO File Folder***".


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
The Supplementary Tools feature enables various additional functions for the storage.
Bootable USB Creator
Steps for Bootable CD/DVD
USB Flash Drive Capacity Restore
Follow these steps to create CD/DVD bootable media for data erasing and drive backup.
In addition to this utility, optical disc authoring software is necessary when creating CD/DVD bootable media. Unable to create CD/DVD bootable media if optical disc authoring software is not installed in your computer.
Step 1.
Please start optical disc authoring software.
Step 2.
Press "Open ISO File Folder" then check stored location of the ISO file and then import ISO file to optical disc authoring software from stored location.
Step 3.
Write the ISO file to CD/DVD media using optical disc authoring software.
Step 4.
Restart your system from the created bootable media. Check your computer manual for instructions for booting from CD/DVD.
Step 5.
After restart, select a Secure Erase button (data erasing function) or a Supplementary Tools button (drive backup function), and execute processing.
Open ISO File Folder.

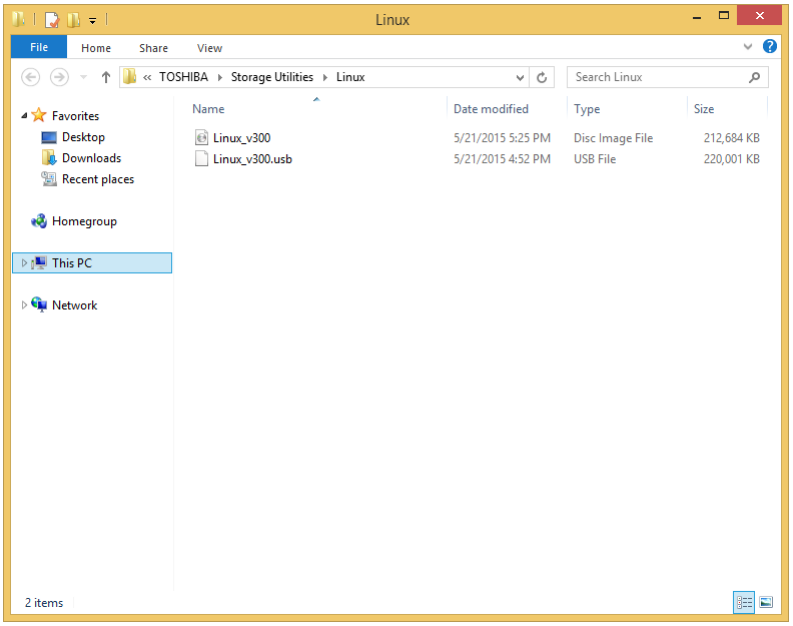
3) When you create CD/DVD bootable media for the first time, if you accept the conditions, then click "***Yes***", and start downloading the bootable module. During the download, the progress screen is displayed. If you have already downloaded, please skip to step **4**.


Storage Utilities
You need to download the bootable module to create a bootable media.
Do you really want to download the bootable module?
Yes
No

4) If you accept the conditions, then click "***Yes***".


Storage Utilities
Please follow the specification of optical disc authoring software on writing operation of CD/DVD.
Do you really want to open ISO file folder?
Yes
No

5) Check stored location of the ISO file and then import the ISO file to optical disc authoring software from stored location.

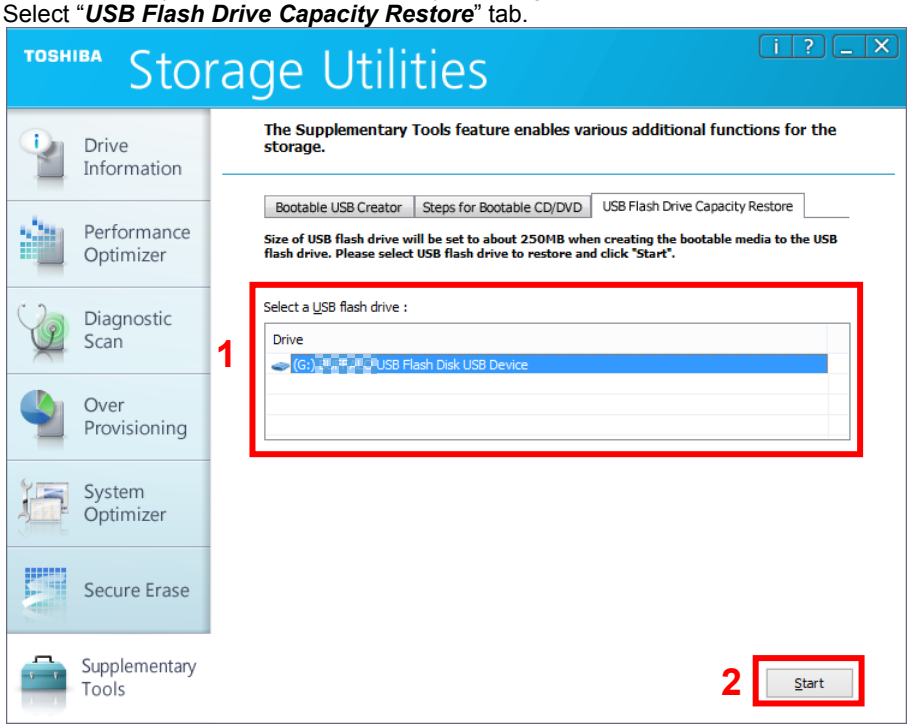



6) Write the ISO file to CD/DVD media using optical disc authoring software.

### 4.8.3. USB Flash Drive Capacity Restore

Size of USB flash drive will be set to about 250MB when creating the bootable USB.
Restore the capacity of the USB flash drive by following steps:

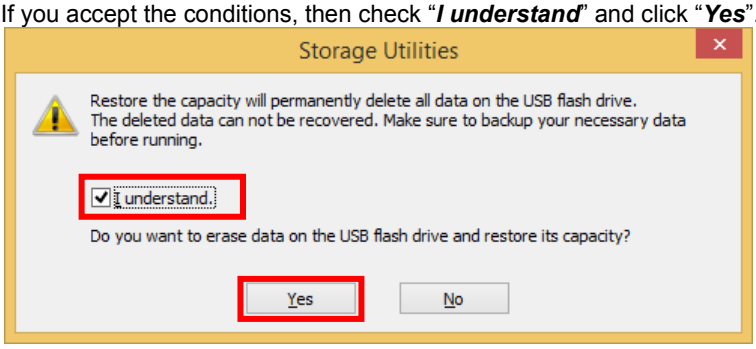
1) Select "***USB Flash Drive Capacity Restore***" tab.


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
The Supplementary Tools feature enables various additional functions for the storage.
Bootable USB Creator
Steps for Bootable CD/DVD
USB Flash Drive Capacity Restore
Size of USB flash drive will be set to about 250MB when creating the bootable media to the USB flash drive. Please select USB flash drive to restore and click "Start".
Select a USB flash drive :
Drive
(G:) USB Flash Disk USB Device
1
2
Start

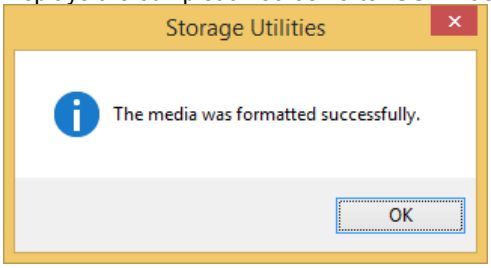
**1** Select a USB flash drive from the drive list box.
If the USB is not shown in the drive list box, close the Storage Utilities and insert the created bootable USB into a port on your system before opening the Storage Utilities. Then start the Storage Utilities.

**2** Click "***Start***".

2) If you accept the conditions, then check "***I understand***" and click "***Yes***".


Storage Utilities
Restore the capacity will permanently delete all data on the USB flash drive.
The deleted data can not be recovered. Make sure to backup your necessary data before running.
I understand.
Do you want to erase data on the USB flash drive and restore its capacity?
Yes
No

3) Displays the completion screen after USB Flash Drive Capacity Restore is finished.



## 4.9. Operation Features on Linux Operating System

Provides features which can be operated using the bootable media created by Supplementary Tools.

### 4.9.1. How to boot from the bootable media



**Note**

- BIOS SETUP UTILITY menu displayed differs depending on the device on your system. (For information on how to start *BIOS SETUP UTILITY*, refer to your system's user manual.)
- You will need to disable UEFI Secure boot.

To boot your computer from the bootable media, perform the following steps:

1) Power on your computer.
2) Start *BIOS SETUP UTILITY*.
3) Select *Boot* menu.
4) Select *Boot Device Priority* in the *Boot Options* menu.
5) Specify the created bootable media as *1st Boot Device* in the *Boot Device Priority* menu.
6) Save the configuration changes and exit *BIOS SETUP UTILITY*.

**Information**

- In AMD chipset, Storage Utilities may not work.
- The created bootable media (Linux) may not start in a computer with USB3.0. However, if the BIOS is updated to the latest version, there is a possibility that a computer with USB3.0 will be able to boot.
- When the bootable media (Linux) does not start with an internal CD/DVD drive, it may start with an external USB CD/DVD drive.

### 4.9.2. How to Run Secure Erase on Linux Operating System

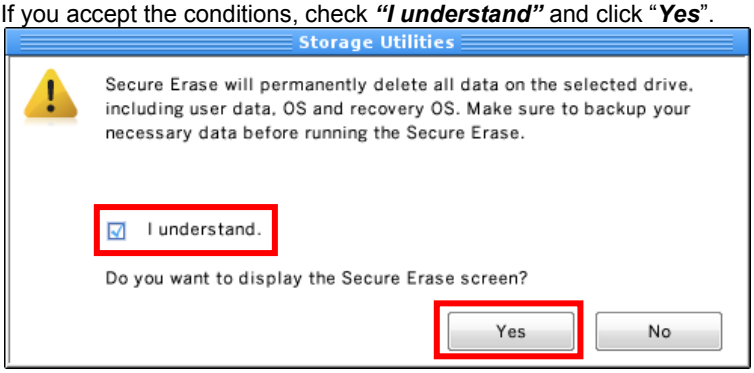
The Secure Erase on Linux OS can be run on the primary drive (bootable drive) or the secondary drive.
Secure Erase on Linux OS by following steps:

> **Note**
>
> - Remove the user password on the drive before running the Secure Erase. (For information on how to remove the user password on the drive, refer to your system's user manual.)

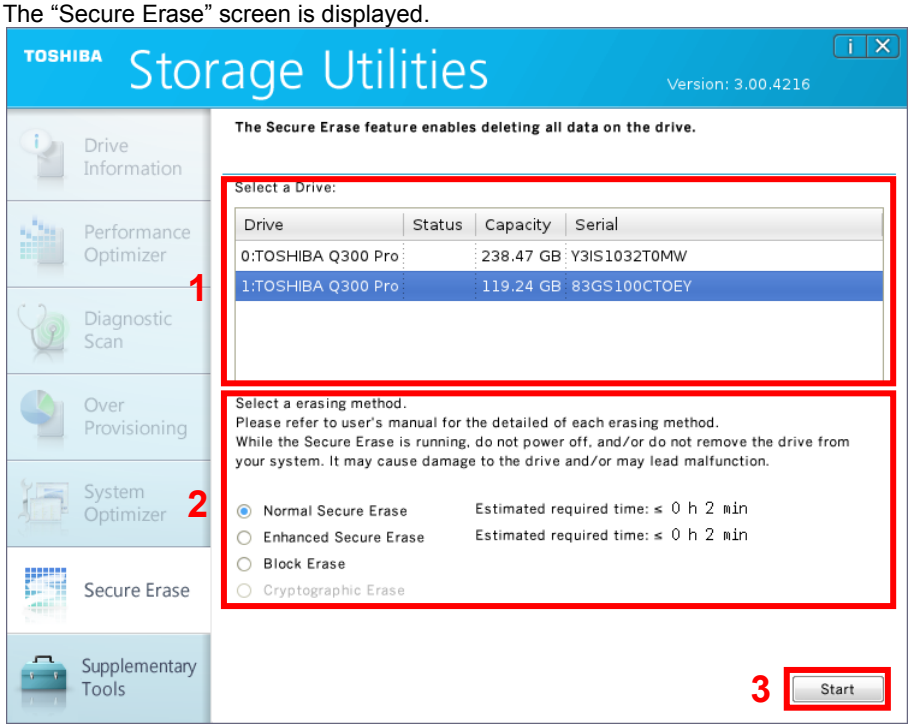
1) Boot from the bootable media. (See 4.9.1. How to boot from the bootable media)

2) Click Secure Erase menu.

3) If you accept the conditions, check ***"I understand"*** and click "***Yes***".


Storage Utilities
Secure Erase will permanently delete all data on the selected drive, including user data, OS and recovery OS. Make sure to backup your necessary data before running the Secure Erase.
I understand.
Do you want to display the Secure Erase screen?
Yes
No

4) The "Secure Erase" screen is displayed.



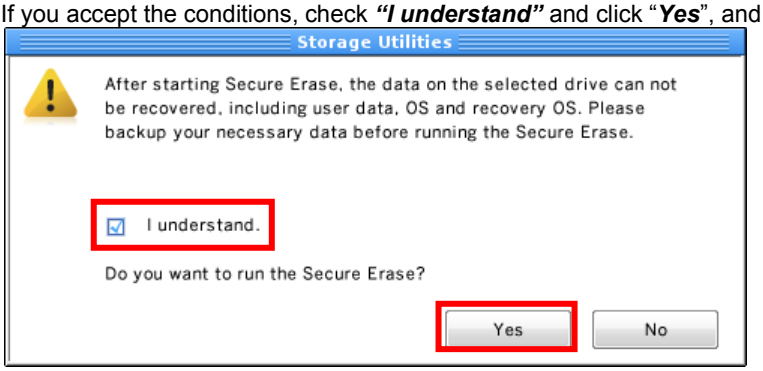

**1** On the drive list, select the drive on which you want to run Secure Erase.

**2** Select erasing method.

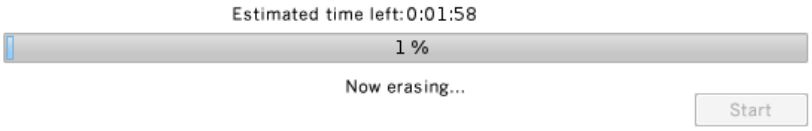
> **Information**
>
> - Normal Secure Erase and Enhanced Secure Erase do not work with the status of Security Locked or Security Frozen.
> - Block Erase and Cryptographic Erase do not work with the status of Security Locked or Sanitize Frozen.

**3** Click "***Start***".

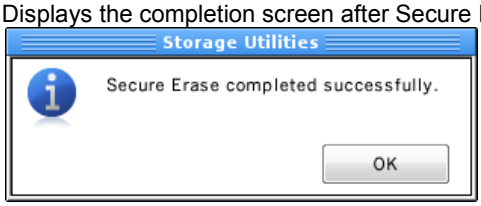
5) If you accept the conditions, check ***"I understand"*** and click "***Yes***", and start Secure Erase.


Storage Utilities
After starting Secure Erase, the data on the selected drive can not be recovered, including user data, OS and recovery OS. Please backup your necessary data before running the Secure Erase.
I understand.
Do you want to run the Secure Erase?
Yes
No

6) Displays the progress for the Secure Erase task on Progress Bar.




7) Displays the completion screen after Secure Erase finished.




**Information**

- The length of the erasure time depends on the capacity of the target drive.
- SSD in Read Only Mode (status is warning) may fail in erasing depending on the status of the drive.

### 4.9.3. How to Run Drive Backup on Linux Operating System

Backup the drive that needs to be rescued.

**Note**

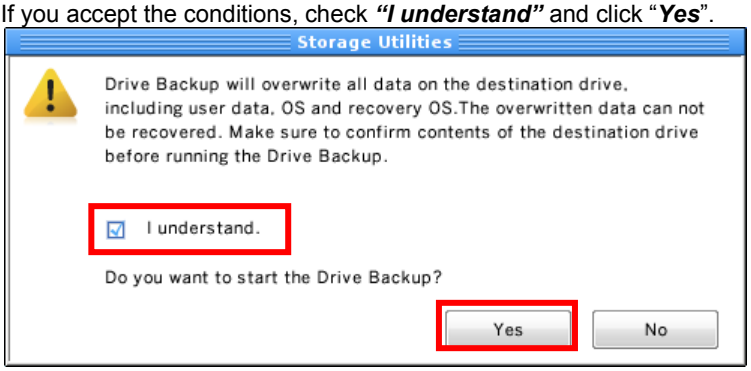
- Use normal drive or new drive as the destination drive.

Backup drive on Linux OS by following steps:

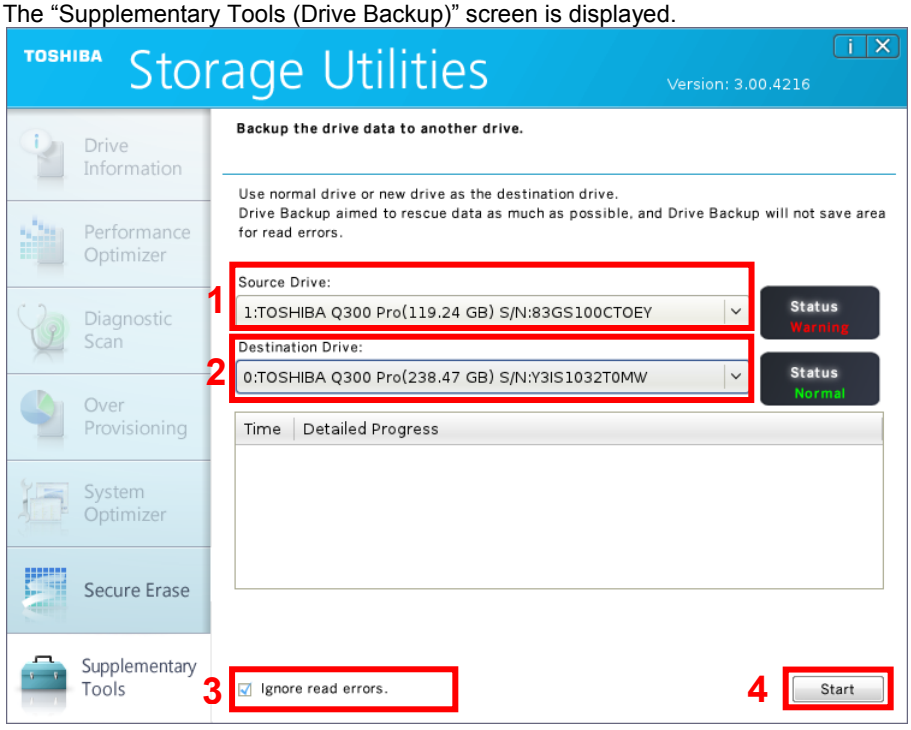
1) Boot form the bootable media. (See 4.9.1. How to boot from the bootable media)

2) Click Supplementary Tools menu.

3) If you accept the conditions, check ***"I understand"*** and click "***Yes***".


Storage Utilities
Drive Backup will overwrite all data on the destination drive, including user data, OS and recovery OS.The overwritten data can not be recovered. Make sure to confirm contents of the destination drive before running the Drive Backup.
I understand.
Do you want to start the Drive Backup?
Yes
No

4) The "Supplementary Tools (Drive Backup)" screen is displayed.




**1** Select the source SSD for Drive Backup from source drive list.

**Information**

- Source drive can select only supported SSD.

**2** Select a SSD from the Destination Drive list.

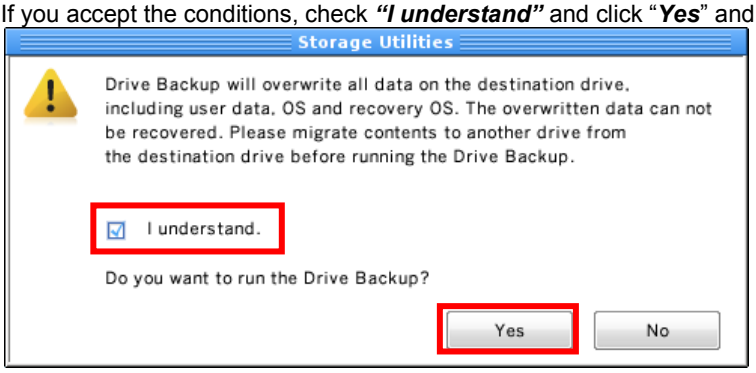
**Information**

- If the destination drive has the capacity equal to or more than the source drive, it may be possible to use a non-supported SSD as the destination drive. However, since it is non-supported SSD, the status of drive is not displayed.

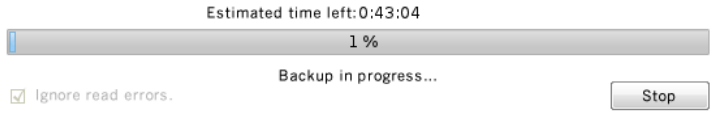
**3** If you wish to ignore the read errors, enable the checkbox.

**4** Click "***Start***".

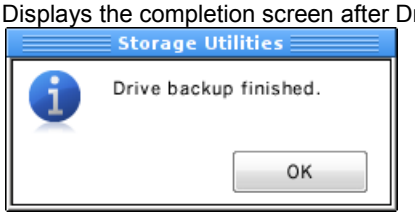
5) If you accept the conditions, check ***"I understand"*** and click "***Yes***" and start Drive Backup.


Storage Utilities
Drive Backup will overwrite all data on the destination drive, including user data, OS and recovery OS. The overwritten data can not be recovered. Please migrate contents to another drive from the destination drive before running the Drive Backup.
I understand.
Do you want to run the Drive Backup?
Yes
No

6) Displays the progress for the backup process on detailed progress.




7) Displays the completion screen after Drive Backup finished.




**Information**

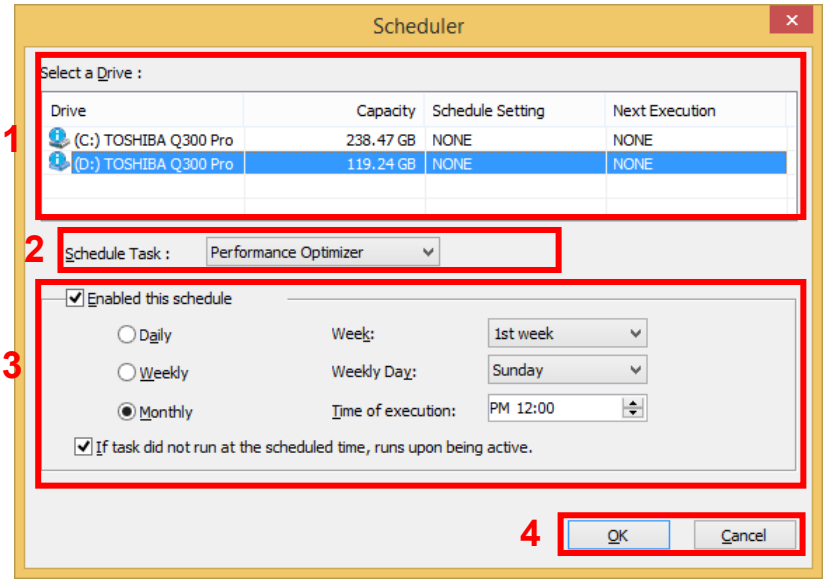
- The SSD may enter Read Only Mode due to some problem with the file system. It may be possible to correct this condition by running check disk (CHKDSK) after Drive Backup.
- Drive Backup is intended to rescue as much data as possible, but the Drive Backup will not copy data in areas where it encounters read error.

## 4.10. Scheduler

The Scheduler allows you to schedule the time to run the Performance Optimizer and Diagnostic Scan.

**Note**

- Do not run Defragmentation and the Performance Optimizer simultaneously. Make sure to disable Defragmentation or disable the schedule of Defragmentation before running the performance optimization.




**1** **Select a Drive**
Displays the list of all available drives on your system.
In the Select a Drive list, click the drive for which you want to set an automated scheduled optimizing or scanning.

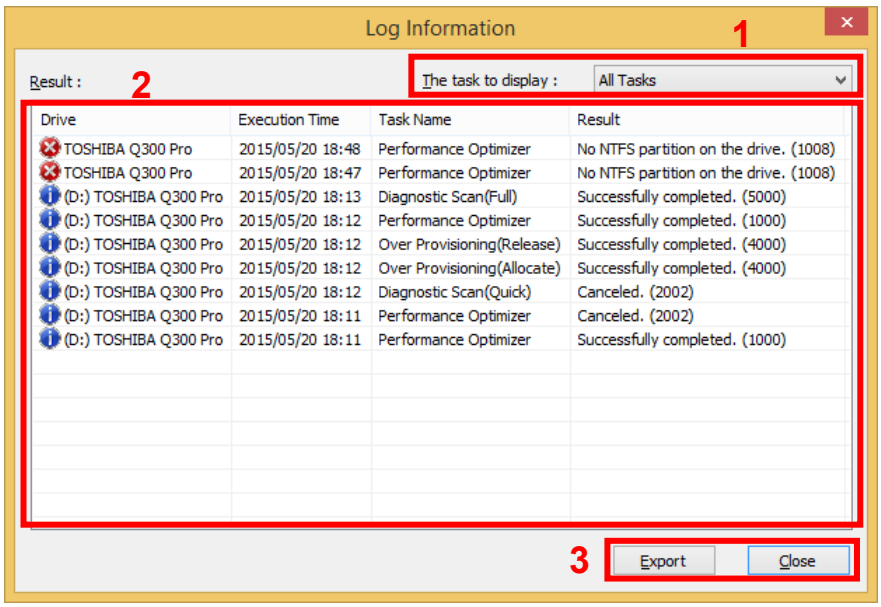
**2** **Schedule Task**
Select the task from the dropdown list box.

**3** **Enable the schedule**
Check the "*Enabled this schedule*" box to set an automated scheduled optimizing or scanning. Then, set the interval, time, day and week to run the optimizing or scanning task.

**4** **OK/Cancel**
Click *"**OK**"* to register the schedule setting.

## 4.11. Log Information

Log Information displays the result of executing the Performance Optimizer / Diagnostic Scan / Over Provisioning / Secure Erase task.


Log Information
1
Result :
2
The task to display :
All Tasks
Drive
Execution Time
Task Name
Result
TOSHIBA Q300 Pro 2015/05/20 18:48 Performance Optimizer No NTFS partition on the drive. (1008)
TOSHIBA Q300 Pro 2015/05/20 18:47 Performance Optimizer No NTFS partition on the drive. (1008)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:13 Diagnostic Scan(Full) Successfully completed. (5000)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:12 Performance Optimizer Successfully completed. (1000)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:12 Over Provisioning(Release) Successfully completed. (4000)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:12 Over Provisioning(Allocate) Successfully completed. (4000)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:12 Diagnostic Scan(Quick) Canceled. (2002)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:11 Performance Optimizer Canceled. (2002)
(D:) TOSHIBA Q300 Pro 2015/05/20 18:11 Performance Optimizer Successfully completed. (1000)
3
Export
Close

**1** **The task to display**
Select the task result from dropdown list box that you want to view.

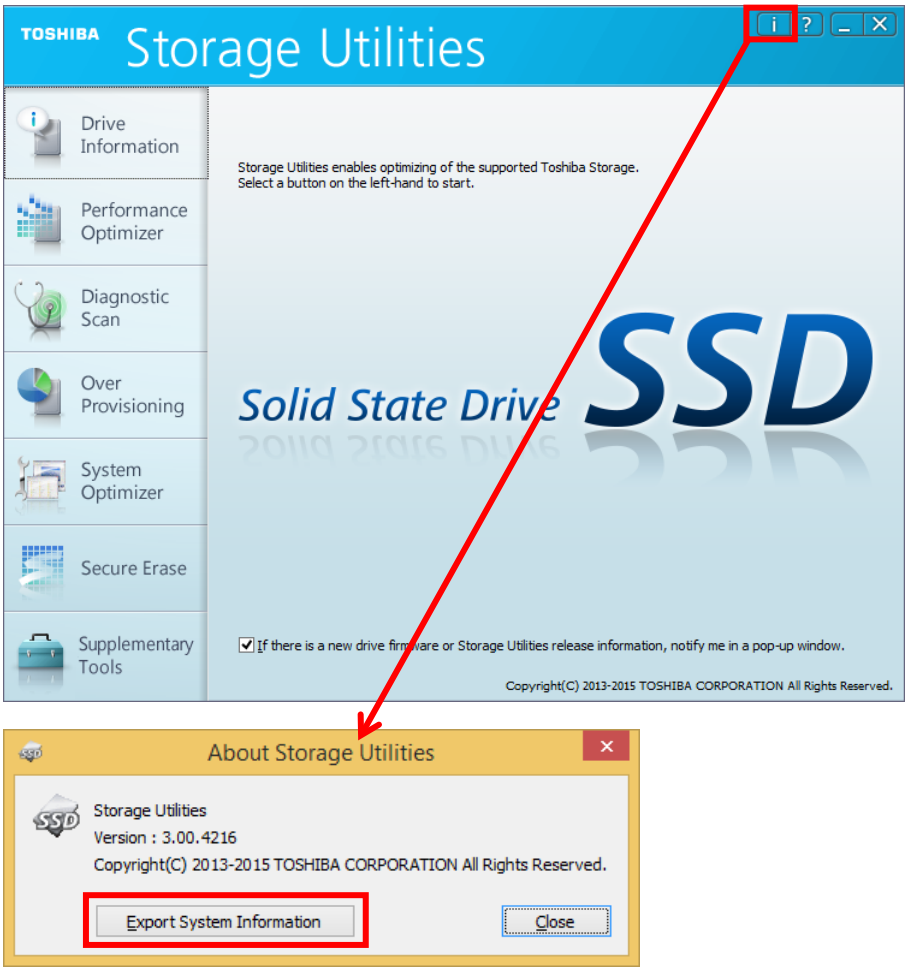
**2** **Result**
Displays the result of executing the Performance Optimizer / Diagnostic Scan / Over Provisioning / Secure Erase task.

**3** **Export / Close**
Click *"**Export**"* to export the log information to CSV format file.
Click *"**Close**"* to close the Log Information dialog.

## 4.12. Export System Information

Export system information (without user information) and drive information of supported drive.

Select “About Storage Utilities…” from title button (i), and click “Export System Information” to export system information to text format file.


TOSHIBA
Storage Utilities
Drive Information
Performance Optimizer
Diagnostic Scan
Over Provisioning
System Optimizer
Secure Erase
Supplementary Tools
Storage Utilities enables optimizing of the supported Toshiba Storage.
Select a button on the left-hand to start.
Solid State Drive
SSD
If there is a new drive firmware or Storage Utilities release information, notify me in a pop-up window.
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